HHS Public Access

Author manuscript

J Reprod Med. Author manuscript; available in PMC 2016 February 26.

Published in final edited form as:

J Reprod Med. 2013 ; 58(0): 7–14.

Patterns of Preconception, Prenatal and Postnatal Care for Diabetic Women by Obstetrician-Gynecologists

Michael L. Power, Ph.D., **Ellen K. Wilson, Ph.D.**, **Sean O. Hogan, Ph.D.**, **John D. Loft, Ph.D.**, **Jennifer L. Williams, M.S.N., M.P.H.**, **Patricia W. Mersereau, M.N.**, and **Jay Schulkin, Ph.D.**

American College of Obstetricians and Gynecologists, Washington, DC; RTI International, Chicago, Illinois; the National Center on Birth Defects and Developmental Disabilities in the Centers for Disease Control and Prevention, Atlanta; and SciMetrika, LLC, Atlanta, Georgia

Abstract

OBJECTIVE—To assess barriers to and quality of care received by diabetic pregnant women from obstetrician-gynecologists.

STUDY DESIGN—A questionnaire was mailed to 1,000 representative practicing Fellows of the American College of Obstetricians and Gynecologists; 74 did not treat pregnant patients and 510 (55.1%) returned completed surveys. Respondents were divided into 3 groups: maternal-fetal medicine specialists, physicians with high minority/low insurance patient populations, and physicians with low minority/high insurance patient populations.

RESULTS—Reported preconception and prenatal care was generally consistent with guidelines. Regarding gestational diabetes mellitus patients the 3 physician groups differed in assessing postpartum glycemic status, counseling about lifestyle changes, and counseling patients to consult a doctor before their next pregnancy. Patient demographics and perceived barriers to care were similar between maternal-fetal medicine specialists and physicians with high minority/low insurance patient populations. These two physician groups were more likely to agree that lack of educational materials, arranging specialist referrals, patient compliance with recommendations, and patients' ability to afford healthful food were barriers to quality care.

CONCLUSION—According to physician self-report, pregnant diabetic patients with access to an obstetrician receive quality care regardless of insurance status. Post-partum care is more variable. Physicians with high minority/low insurance patient populations may lack access to resources.

Keywords

clinical care; diabetes; pregnancy

Diabetic women with access to an obstetrician generally receive quality care regardless of health insurance status.

Address correspondence to: Michael L. Power, Ph.D., Department of Research, American College of Obstetricians and Gynecologists, 409 12th Street Southwest, P.O. Box 96920, Washington, DC 20024 (mpower@acog.org).

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Financial Disclosure: The authors have no connection to any companies or products mentioned in this article.

Although estimates differ, epidemiological studies have found that diabetes (either type 1, type 2, or gestational) affects > 4% of pregnancies in the United States.[1–3] Published data indicate that minority women and women of low socioeconomic status are more vulnerable.[4]

Poor glycemic control in pregnant women with preexisting diabetes mellitus (PEDM), either type 1 or type 2, increases the risk for adverse pregnancy outcomes. Major birth defects are several times more likely to affect fetuses of these women compared to fetuses of women with good glycemic control.[5–9] Women with poorly controlled PEDM have an increased risk for spontaneous abortion and are at risk of worsening preexisting maternal complications such as retinopathy, nephropathy, neuropathy, and coronary artery disease.[6,7,10] Poor maternal glycemic control also increases the risks of prematurity, microsomia, macrosomia and associated shoulder dystocia at delivery, hypoglycemia, jaundice, hypocalcemia, and polycythemia.[10] Furthermore, infants born to women with poor glycemic control in pregnancy have an increased risk for obesity, which can lead to diabetes and other health problems later in life.[10,11]

Although women with gestational diabetes mellitus (GDM) do not experience most of the complications of women with PEDM, a significant proportion of women with GDM will develop type 2 diabetes within 5–10 years[12,13] and thus potentially could have a subsequent pregnancy with PEDM. Some proportion of women diagnosed with GDM might have had unrecognized PEDM with poor glycemic control resulting in unanticipated poor pregnancy outcomes.[14] Although infants born to women with GDM are not at increased risk for a major structural defect, if there is poor maternal glycemic control the infants are at risk for macrosomia and potential shoulder dystocia at delivery as well as hypoglycemia. Similar to consequences of PEDM, infants whose mothers with gestational diabetes had poor glycemic control are at increased risk for developing obesity and, as a result, diabetes and other obesity-related chronic health conditions.[15,16]

The prevalence of diabetes in pregnancy and the adverse consequences of poor glycemic control during pregnancy make effective management of diabetes before, during and after pregnancy a priority.[12,17] Studies indicate significant variation in care given to diabetic pregnant women.[18–20] A focus group study of health care providers serving low-to middle-income and minority patients in the Atlanta, Georgia, area found that the greatest perceived barriers to appropriate management of diabetes during pregnancy involved access to re-sources, patients' lack of knowledge, and patients' attitude.[21] In this national survey we examined reported practice patterns of obstetricians regarding management of diabetes during and following pregnancy, and perceived practice barriers. Possible disparities in care associated with patient socioeconomic factors such as her insurance status or race/ethnicity were examined.

Materials and Methods

The American College of Obstetricians and Gynecologists (ACOG) Research Department mailed questionnaires to 1,000 randomly selected members of the Collaborative Ambulatory Research Network (CARN), a group of practicing obstetrician-gynecologists representative of ACOG Fellows relative to geographic location, age, and sex and who have agreed to

participate in periodic ACOG surveys.[22,23] The participant sample excluded physicians listed in the CARN database as practicing gynecology only. There were a total of 5 mailings, with each subsequent mailing after the first one being sent only to physicians who had not yet responded. Participants were not offered any compensation for returning a survey.

From the original 1,000 sampled physicians, 584 returned surveys; however, 74 of the respondents no longer treated pregnant patients and were excluded from the sample, resulting in a response rate of 55.1% (510 completed questionnaires from a total possible of 926). There was no difference in response rate between men and women (54.9% vs. 56.3%, $p = 0.653$); however, nonrespondents were younger than respondents (47.2 ± 0.4 years vs. 49.0 ± 0.4 years, $p = 0.003$).

The survey contained questions regarding physician and patient population demographics, physician practice patterns related to treatment of pregnant diabetic women, and opinions concerning barriers to appropriate treatment. The questionnaire was evaluated using a Question Appraisal System (QAS) developed by RTI International to evaluate the structure and effectiveness of the questionnaire form itself. The QAS was based on several previous question appraisal systems and, in part, from a method developed to examine and classify the cognitive processes inherent in the question-answering process.[24] Responses were entered into a software package (SPSS 16.0, SPSS, Inc., Chicago, Illinois) data file for analysis. The study was approved by the institutional review board of RTI International.

We used cluster analysis on physician reports of their patients' characteristics to develop a dichotomy of practices of low minority patient populations with a high proportion of insurance coverage and those with high minority patient populations and low insurance coverage. Maternal-fetal medicine (MFM) practices (48 practices) were not included in this dichotomy, as we *a priori* expected their characteristics to differ from non-MFM practices. Among the 462 non-MFM respondents, 304 physicians were classed in the low-minority/high-insurance group, 138 in the high-minority/low-insurance group, and 20 could not be classified because they did not answer one or more of the cluster-defining questions. Results are presented separately for physicians in low-minority/high-insurance practices, physicians in high-minority/low-insurance practices, and MFMs. Statistical comparisons were made across all 3 groups and, where appropriate, for the pair-wise comparisons.

We report values for continuous variables as mean ± standard error of the mean (SEM) and frequencies in percent. We use F-tests for differences between means, Mann Whitney U test for scaled responses to test for differences between 2 groups, and the Kruskal Wallis test for differences among 3 groups. For categorical data we used χ^2 tests. Statistical significance was set at $p < 0.05$.

Results

Among the 510 eligible respondents, 452 (88.6%) practiced obstetrics and gynecology, 48 (9.4%) were MFM specialists, 4 (0.8%) practiced obstetrics only, and 6 (1.2%) listed other as their specialty. Practice setting differed among MFMs and the 2 patient demographic practice groups ($p < 0.001$), with MFMs more likely to practice in an academic setting,

physicians with low minority/high insurance patient populations more likely to be in private group practice, and physicians with high minority/low insurance patient populations more evenly spread among the practice types. Physicians with high minority/low insurance patient populations were more likely than the other 2 groups to have a solo practice (Table I). The mean number of years in practice (17.5 ± 1.5) did not differ among the 3 groups ($p = 0.587$). Physicians with high-minority/low-insurance patient populations reported on average performing more deliveries per year (160 ± 10, $p = 0.023$) as compared to physicians with low minority/high insurance patient populations (134 ± 5) or MFMs (129 ± 20). Patient demographics and insurance status were similar between MFMs and physicians with high minority/low insurance patient populations (Table I).

Preconception Care

MFMs and physicians from the high-minority/low-insurance group estimated that a lower proportion of pregnancies among their patients were planned or intended compared to physicians from the low-minority/high-insurance group ($p < 0.001$) (Table I). A pattern of MFMs and physicians in the high minority/low insurance group being more similar in opinions and practice occurs in several instances reported here.

Most physicians reported asking their nonpregnant patients about pregnancy plans always (34.9%) or most of the time (51.5%). If the patient had diabetes, 69.6% of the responding physicians reported they would be more likely to ask about her pregnancy plans. MFMs were more likely than non-MFM physicians to always ask about their patients' pregnancy plans (47.4% vs. 33.8%, $p = 0.001$). In this instance the high minority/low insurance and low minority/high insurance groups did not differ from each other. None of these responses were correlated with the physicians' estimation of the proportion of pregnancies that were planned or intended.

A majority of the responding physicians reported that they always (76.7%) or most of the time (18.6%) counsel women with diabetes about the importance of preconception care. Even if a diabetic woman states she does not wish to become pregnant, a majority of the responding physicians reported always or most of the time discussing glycemic control (86.2%), weight and diet (84.3%), medication use (83.1%), exercise (81.5%), and vitamin use (79.1%), as well as personal harms (82.3%), delivery complications (78.3%), and harms to the baby (71.6%) associated with diabetes during pregnancy. The responses of always or most of the time increase to >90% when the woman expresses a desire to become pregnant, and, except for exercise (82.7%), > 90% of responding physicians reported always discussing these issues with diabetic women who are pregnant. MFMs and physicians with high-minority/low-insurance patient populations did not differ in these practice patterns. Both groups were more likely than physicians with low minority/high insurance patient populations to always discuss glycemic control, vitamin use, weight and diet, and potential complications of a diabetic pregnancy with their diabetic patients who do not want to get pregnant (Table II), but physician-reported behavior did not differ for patients who want to get pregnant or are pregnant (data not shown).

Prenatal Care

MFMs were the most likely to personally manage glucose control in the majority of their patients, followed by physicians from the high-minority/ low-insurance and low minority/ high insurance groups (77.1%, 51.8%, and 40.5%, respectively, p = 0.028). Physicians from the high-minority/low-insurance group were less likely than physicians from the low-minority/high-insurance group to have a diabetes specialist manage glucose control for their pregnant diabetic patients (31.4% vs. 48.1%, p = 0.001).

Almost all physicians perform early screening (before 28 weeks) for gestational diabetes if the patient has high blood sugar (98.0%) or had GDM in a previous pregnancy (94.7%). MFMs and physicians with high-minority/low-insurance patient populations were more likely than physicians with low-minority/high-insurance patient populations to perform early screening if the patient had a family history of GDM (72.9% and 68.6%, respectively, vs. 51.0%, p = 0.001) or was overweight (91.7% and 80.3%, respectively, vs. 67.0%, p = 0.001).

Concerns of Physicians Caring for Pregnant Women with Diabetes

A majority of physicians considered patient compliance with recommendations and patient follow-up to lifestyle changes to be major concerns for both GDM and PEDM patients. Although the three-way comparison found no significant difference in level of concern regarding patients' follow-through on suggested lifestyle, the pair-wise comparison found that physicians with high minority/low insurance patient populations were more concerned about this issue than either MFMs or physicians with low minority/high insurance patient populations ($p < 0.05$). There were no significant differences between physicians with high minority/low insurance patient populations and physicians with low minority/high insurance patient populations on any concern for PEDM patients.

Postpartum Care

Postpartum, a majority of respondents routinely counsel their GDM patients about lifestyle changes (82.8%), long term weight, diet and exercise management (66.1%), consulting with a physician before a subsequent pregnancy (61.6%), and needing regular glucose testing and evaluation (58.4%). About 7 of 10 of the physicians (70.4%) routinely assess glucose metabolism at the postpartum visit either by performing an oral glucose tolerance test (OGTT) (48.3%), checking fasting glucose levels (33.9%), referring the patient for a glucose metabolism evaluation (13.6%), or by some combination. A majority of respondents (71.6%) considered the risk of conversion to type 2 diabetes a major concern for their GDM patients, with most of the rest (27.0%) considering it a minor concern. Physicians who considered conversion to type 2 diabetes a major concern, regardless of specialty or patient population, were more likely to perform an OGTT postpartum and to counsel their GDM patients on a number of issues postpartum (Table III). However, even among this group only about half routinely perform a postpartum OGTT. MFMs were more likely than physicians with either high minority/low insurance or low minority/high insurance populations to routinely administer an OGTT (83.3% vs. 42.3% and 48.2%, respectively, p = 0.001). Physicians with high-minority/low-insurance patient populations were similar to MFMs in being more likely than physicians with low minority/high insurance patient populations to

routinely counsel their patients with GDM about consulting with a physician before getting pregnant again (71.0%, 69.8%, and 55.7%, respectively, $p = 0.020$).

Potential Barriers to Treatment

A majority of physicians agreed or strongly agreed that limitations on the amount of time spent with patients and problems with reimbursement or insurance coverage were barriers (Table IV). Few agreed that their own training and knowledge were a barrier, with MFMs being the least likely to agree ($p < 0.001$). Compared to physicians with low minority/high insurance patient populations, physicians with high-minority/low-insurance patient populations and MFMs were more likely to agree that arranging referrals to specialists and a lack of educational materials were barriers to providing appropriate treatment. Consistent with the latter result, physicians with high-minority/low-insurance patient populations and MFMs were more likely to indicate that there is a high unmet need for educational materials for low-literacy audiences and Spanish-speaking patients (data not shown). They also were significantly more likely to agree that their patients have difficulty affording healthful food and that their patients do not follow their recommendations (Table IV).

Discussion

In general, the reported care provided to diabetic women by the responding physicians is in line with ACOG recommendations. Most physicians asked their patients about their pregnancy plans always or most of the time. Many of the responding physicians report that they always counsel their diabetic patients considering pregnancy regarding glycemic control, vitamin use, their prescription medications, and weight, diet and exercise. If the patient is pregnant, the proportion of physicians who always counsel is > 90% for all but exercise (82.7%). It is perhaps somewhat disappointing that about 1 in 5 responding physicians do not routinely counsel pregnant diabetic women about exercise. In addition, 14–21% of the responding physicians do not routinely counsel their diabetic patients about glycemic control, vitamin use, their prescription medications, and weight, diet and exercise if the patient does not express a desire to get pregnant. Considering that almost half of pregnancies in the U.S. are unplanned[25] and that the responding physicians themselves believe that, on average, < 60% of the pregnancies among their patients are planned or intended, it is concerning that physicians are not routinely counseling their patients with diabetes on these issues. Planning their pregnancies and using effective contraception until glycemic control is achieved are important strategies for physicians to encourage in women with diabetes in order to reduce the risk for birth defects in their infants and other adverse pregnancy outcomes.

It was also disappointing to find that, although virtually all physicians rated conversion to type 2 status as a concern at some level for their GDM patients, less than half of these physicians fully evaluated their GDM patients' glucose metabolism postpartum by performing an OGTT. Prevention of or delay in conversion to type 2 diabetes can reduce the risk of potential complications of diabetes in the woman and of birth defects in any future infant.[12] Physician concern regarding the future consequences of a GDM pregnancy does

not appear to be matched by appropriate screening, counseling and referral practices. This would appear to be an area where practice can improve.

There are several limitations to this study. The physicians in this sample are all members of CARN, a voluntary research network. ACOG sends out periodic invitations to subgroups of Fellows to join CARN in order to keep CARN membership similar in age, sex, and geographic representation to all actively practicing ACOG Fellows. Several surveys a year are sent to both CARN members and randomly selected Fellows. Over the 18-year history of the CARN,[22,23] randomly selected Fellows rarely differed from CARN members in their responses; however, we cannot exclude the possibility that CARN members may differ from other ACOG Fellows in ways we have as yet been unable to measure. Another limitation of the study is that the data are all derived from physician self-report. Finally, although the response rate was comparable to past CARN survey studies, > 40% of eligible participants declined to respond. Nonrespondents were younger on average, implying less clinical experience. It is possible that the nonrespondents were less knowledgeable regarding appropriate practice for pregnant diabetic women, in which case our results are overly optimistic.

It is not surprising that MFM specialists might practice differently from general obstetrician-gynecologists. MFMs likely see a higher percentage of pregnancies complicated by diabetes of all types. The differences between MFMs and the other ACOG Fellows in this study are consistent with MFMs being more aware of adverse outcomes associated with diabetes in pregnancy and of best practices for management. However, although a higher proportion of MFMs responded that they ask about their diabetic patients' pregnancy plans and provide preconception counseling, many MFMs rarely see nonpregnant patients but rather are more likely to treat high-risk pregnant women referred to them. Thus this more conscientious practice by MFMs may not translate into increased quality of preconception care received by diabetic women.

The differences between physicians based on their patient demographics are of interest. Physicians with high minority/low insurance patient populations appeared to practice more conscientiously in certain aspects of care provided to diabetic women. In general, these physicians were more likely to manage their diabetic patients' blood glucose personally and to counsel their patients regarding appropriate practices. They also appeared to have a higher level of concern regarding their patients' access to resources (e.g., referral to specialists, access to healthful food, and access to educational resources) and regarding their patients' ability and willingness to comply with provider recommendations. Their practice and opinion profile was generally closer to that of MFMs than to the physicians with low minority/high insurance patient populations (Tables I, II, and IV).

Unfortunately, we do not have data to assess possible explanatory causes for these differences in relation to patient population. Our data are consistent with physicians with high minority/low insurance patient populations having access to fewer resources (e.g., less likely to practice in a group practice, on average perform more deliveries, and are more likely to manage glucose control for their patients without the assistance of a diabetes specialist) and to perceiving that their patients have less access to appropriate resources. The

more precarious health insurance situation for these patient populations on average certainly seems relevant to understanding the different level of concern by these physicians. The self-reported behavior of these physicians indicates that pregnant diabetic women without insurance but with access to an obstetrician are receiving quality care; however, the physicians and their patients may lack infrastructure and access to resources.

A majority of all the responding physicians rated limitations on the amount of time spent with patients and, perhaps related, problems with reimbursement and insurance coverage as barriers to quality care. Among physicians with a high proportion of vulnerable patients (minorities and underinsured) a majority rated patient compliance as a barrier (Table IV). Educational resources for patients can help the physician increase awareness and knowledge of diabetes among women with or at risk for diabetes and of the strategies and practices to manage and ameliorate the harmful consequences. In this study many physicians, especially those who serve vulnerable populations, expressed concern over a lack of such educational resources.

In summary, diabetic women with access to an obstetrician generally receive quality care regardless of health insurance status. Postpartum evaluation of glucose metabolism in GDM patients appears to be an area that could be improved. A majority of responding physicians considered the amount of time spent with patients and problems with reimbursement or insurance coverage to be barriers to quality care. Women in patient populations with high minority and/or low insurance status may lack access to resources and educational materials.

Acknowledgments

All authors contributed to designing the survey instrument. Norma Gavin, Ph.D., of Impaq International contributed to the design of the survey instrument while employed at RTI International. M.L.P. had primary responsibility for data analysis and writing the manuscript. All other authors contributed to the discussion and reviewed/edited the manuscript.

Research funded through a cooperative agreement among the National Center on Birth Defects and Developmental Disabilities in the Centers for Disease Control and Prevention, RTI International, and the American College of Obstetricians and Gynecologists, and by cooperative agreement UA6MC19010 with the American College of Obstetricians and Gynecologists from the Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services.

References

1. Ahluwalia IB, Mack KA, Mokdad A. Report from the CDC: Changes in selected chronic disease-related risks and health conditions for nonpregnant women 18–44 years old BRFSS. J Womens Health (Larchmt). 2005; 14:382–386. [PubMed: 15989409]
2. Martin, J.; Hamilton, B.; Sutton, P., et al. Births: Final data for 2005. Hyattsville, Maryland: National Center for Health Statistics; 2007.
3. Lawrence JM, Contreras R, Chen W, et al. Trends in the prevalence of preexisting diabetes and gestational diabetes mellitus among a racially/ethnically diverse population of pregnant women, 1999–2005. Diabetes Care. 2008; 31:899–904. [PubMed: 18223030]
4. Link CL, McKinlay JB. Disparities in the prevalence of diabetes: Is it race/ethnicity or socioeconomic status? Results from the Boston Area Community Health (BACH) survey. Ethn Dis. 2009; 19:288–292. [PubMed: 19769011]
5. Kousseff B. Diabetic embryopathy. Curr Opin Pediatr. 1999; 11:348–353. [PubMed: 10439209]

6. Ray JG, O'Brien TE, Chan WS. Preconception care and the risk of congenital anomalies in the offspring of women with diabetes mellitus: A meta-analysis. QJM. 2001; 94:435–444. [PubMed: 11493721]
7. Reece E, Homko C. Why do diabetic women deliver malformed infants? Clin Obstet Gynecol. 2000; 43:32–45. [PubMed: 10694986]
8. Reece EA. Obesity, diabetes, and links to congenital defects: A review of the evidence and recommendations for intervention. J Matern Fetal Neonatal Med. 2008; 21:173–180. [PubMed: 18297572]
9. Ylinen K, Aula P, Stenman UH, et al. Risk of minor and major fetal malformations in diabetics with high haemoglobin A1c values in early pregnancy. Br Med J (Clin Res Ed). 1984; 289:345–346.
10. Galerneau F, Inzucchi SE. Diabetes mellitus in pregnancy. Obstet Gynecol Clin North Am. 2004; 31:907–933. [PubMed: 15550342]
11. Illsley NP. Placental glucose transport in diabetic pregnancy. Clin Obstet Gynecol. 2000; 43:116–126. [PubMed: 10694994]
12. Kim C, Newton KM, Knopp RH. Gestational diabetes and the incidence of type 2 diabetes: A systematic review. Diabetes Care. 2002; 25:1862–1868. [PubMed: 12351492]
13. O'Sullivan JB. Body weight and subsequent diabetes mellitus. JAMA. 1982; 248:949–952. [PubMed: 7097963]
14. Correa A, Gilboa SM, Besser LM, et al. Diabetes mellitus and birth defects. Am J Obstet Gynecol. 2008; 199:237 e1–237 e9. [PubMed: 18674752]
15. Dabelea D. The predisposition to obesity and diabetes in offspring of diabetic mothers. Diabetes Care. 2007; 30(Suppl 2):S169–S174. [PubMed: 17596467]
16. Metzger BE. Long-term outcomes in mothers diagnosed with gestational diabetes mellitus and their offspring. Clin Obstet Gynecol. 2007; 50:972–979. [PubMed: 17982340]
17. Dabelea D, Snell-Bergeon JK, Hartsfield CL, et al. Increasing prevalence of gestational diabetes mellitus (GDM) over time and by birth cohort: Kaiser Permanente of Colorado GDM Screening Program. Diabetes Care. 2005; 28:579–584. [PubMed: 15735191]
18. Dietz PM, Vesco KK, Callaghan WM, et al. Postpartum screening for diabetes after a gestational diabetes mellitus-affected pregnancy. Obstet Gynecol. 2008; 112:868–874. [PubMed: 18827130]
19. Almario CV, Ecker T, Moroz LA, et al. Obstetricians seldom provide postpartum diabetes screening for women with gestational diabetes. Am J Obstet Gynecol. 2008; 198:528 e1–528 e5. [PubMed: 18191799]
20. Gabbe SG, Gregory RP, Power ML, et al. Management of diabetes mellitus by obstetrician-gynecologists. Obstet Gynecol. 2004; 103:1229–1234. [PubMed: 15172857]
21. Mersereau P, Williams J, Collier S, et al. Barriers to managing diabetes during pregnancy: The perceptions of health care providers. Birth. 2011; 38:142–149. [PubMed: 21599737]
22. Hill LD, Erickson K, Holzman GB, et al. Practice trends in outpatient obstetrics and gynecology: Findings of the Collaborative ambulatory research network, 1995–2000. Obstet Gynecol Surv. 2001; 56:505–516. [PubMed: 11496162]
23. Coleman VH, Power ML, Zinberg S, et al. Contemporary clinical issues in outpatient obstetrics and gynecology: Findings of the Collaborative Ambulatory Research Network, 2001–2004: Part II. Obstet Gynecol Surv. 2004; 59:787–794. [PubMed: 15502631]
24. Lessler, JT.; Forsyth, BH. A coding system for appraising questionnaires. In: Schwarz, N.; Sudman, S., editors. Answering Questions: Methodology for Determining Cognitive and Communicative Processes in Survey Research. San Francisco: Jossey-Bass Publishers; 1996. p. 259-292.
25. Finer LB, Henshaw SK. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. Perspect Sex Reprod Health. 2006; 38:90–96. [PubMed: 16772190]

Table I

Practice Setting and Patient Demographics[1]

Parameter	MFMs (%) (n = 48)	High minority/ low insurance (%) (n = 138)	Low minority/ high insurance (%) (n = 304)	Full sample[2] (%) (n = 510)
Practice setting				
Private group	14.6	29.0	61.8	48.0
Private solo	8.3	26.1	15.1	17.3
Academic	68.8	21.7	5.9	16.5
Hospital-owned	8.3	15.2	15.4	12.5
Other	0	7.2	1.3	
Patient race/ethnicity				
non-Hispanic white	37.6	34.3	66.2	56.3
African American	25.1	23.4	13.0	16.2
Hispanic	27.8	29.5	11.1	16.8
Patients with limited English proficiency	25.7	26.4	8.1	13.8
Patients' insurance coverage				
Private	34.5	31.4	79.3	64.3
Medicaid	50.6	51.7	14.5	26.1
None	9.2	10.3	4.2	6.1
Estimated percent of pregnancies that are planned or intended	45.9	43.7	67.1	58.5

[1] Physician practices (MFMs excluded) were divided into 2 groups by cluster analysis using the listed patient demographic characteristics as estimated by the physician.

[2] The 3 groups do not add to the total sample because 20 physicians could not be categorized by their patient population as they did not answer one or more patient demographic questions.

Table II

Proportions of Physicians Who Always Counsel Their Diabetic Patients Who Do Not Want to Get Pregnant[1]

	Always discuss			
Topic discussed	**Low minority/ high insurance group No. (%) (n = 303)**	**High minority/ low insurance group No. (%) (n = 137)**	**MFM specialist group No. (%) (n = 43)**	**p Value Kruskal-Wallis test**
Glycemic control	165 (54.5)	91 (66.4)	33 (76.7)	0.004
Vitamin use	141 (46.5)	80 (58.4)	28 (65.1)	0.006
Personal harms	138 (45.5)	82(59.9)	31 (72.1)	0.001
Delivery complications	102 (33.6)	72 (52.6)	24 (55.8)	0.001
Harms to baby	117 (38.5)	73 (53.3)	27 (62.8)	0.001
Weight and diet	135 (44.4)	70 (51.1)	27 (62.8)	0.056

[1] Five MFMs did not answer as they do not see nonpregnant patients.

Table III

Relationship Between Answering That the Conversion to Type 2 Diabetes Is a Major Concern for GDM Patients and Postpartum Visit Practice

Postpartum visit practice	Consider type 2 conversion a major concern	Do NOT consider type 2 conversion a major concern	p Value
Routinely obtain fasting glucose	35.2%	29.8%	0.904
Routinely perform an OGTT	52.1%	38.3%	0.041
Routinely refer for glucose evaluation	16.3%	7.1%	0.157
Routinely counsel regarding regular glucose testing	62.6%	47.5%	0.004
Routinely counsel regarding lifestyle changes	88.0%	69.5%	0.001
Routinely counsel to talk with doctor before next pregnancy	64.3%	53.6%	0.030
Routinely refer or counsel regarding weight, diet and exercise	70.1%	55.0%	0.002

p Value from Mann-Whitney U test.

Table IV

Potential Barriers to Appropriate Care

	Agree or strongly agree			
Potential barrier	**MFMs No. (%)**	**High minority/ low insurance No. (%)**	**Low minority/ high insurance No. (%)**	**p Value Kruskal-Wallis test**
Limitations on the amount of time spent with patients	32 (66.7)	104 (76.5)	245 (81.4)	0.189
Problems with reimbursement or insurance coverage	27 (56.3)	90 (66.2)	181 (60.1)	0.400
Arranging referrals to specialists	22 (46.8)	71 (52.2)	125 (41.5)	0.031
Insufficient educational materials	20 (41.6)	65 (47.4)	108 (36.0)	0.039
Patients do not adhere to recommendations	28 (58.3)	78 (56.9)	113 (37.7)	p<0.001
Patients have difficulty affording healthful food	26 (54.1)	82 (59.9)	77 (25.7)	p<0.001
My training/knowledge is inadequate	1 (2.1)	21 (15.4)	40 (13.3)	p<0.001